

IN THE CLAIMS:

Please cancel claims 1-71 without prejudice or disclaimer, and substitute new claims 72-146 therefor as follows:

Claims 1-71 (Cancelled).

72. (New) A tire comprising at least one structural element comprising a crosslinked elastomeric material obtained by crosslinking a crosslinkable elastomeric composition comprising:

- (a) 100 phr of at least one diene elastomeric polymer;
- (b) 1 phr to 50 phr of at least one layered material having an individual layer thickness of 0.01 nm to 30 nm;
- (c) from 0.1 phr to 15 phr of at least one methylene donor compound; and
- (d) 0.4 phr to 20 phr of at least one methylene acceptor compound.

73. (New) The tire according to claim 72, wherein said crosslinkable elastomeric composition comprises 2 phr to 40 phr of at least one layered material.

74. (New) The tire according to claim 72, wherein said crosslinkable elastomeric composition comprises 5 phr to 30 phr of at least one layered material.

75. (New) The tire according to claim 72, wherein said at least one layered material has an individual layer thickness of 0.05 nm to 15 nm.

76. (New) The tire according to claim 72, wherein said crosslinkable elastomeric composition comprises 0.3 phr to 10 phr of at least one methylene donor compound.

77. (New) The tire according to claim 72, wherein said crosslinkable elastomeric composition comprises 0.8 phr to 15 phr of at least one methylene acceptor compound.

78. (New) The tire according to claim 72, comprising:

 a carcass structure of a substantially toroidal shape, having opposite lateral edges associated with respective right-hand and left-hand bead structures, said bead structures comprising at least one bead core and at least one bead filler;

 a belt structure applied in a radially external position with respect to said carcass structure;

 a tread band radially superimposed on said belt structure;

 a pair of sidewalls applied laterally on opposite sides with respect to said carcass structure; and

 at least one structural element selected from bead filler, sidewall insert, tread underlayer, or tread base, obtained by crosslinking a crosslinkable elastomeric composition comprising:

 (a) 100 phr of at least one diene elastomeric polymer;

 (b) 1 phr to 50 phr of at least one layered material having an individual layer thickness of 0.01 nm to 30 nm;

 (c) 0.1 phr to 15 phr of at least one methylene donor compound; and

 (d) 0.4 phr to 20 phr at least one methylene acceptor compound.

79. (New) The tire according to claim 78, wherein said crosslinkable elastomeric composition comprises 2 phr to 40 phr of at least one layered material.

80. (New) The tire according to claim 78, wherein said crosslinkable elastomeric composition comprises 5 phr to 30 phr of at least one layered material.

81. (New) The tire according to claim 78, wherein said at least one layered material has an individual layer thickness of 0.05 nm to 15 nm.

82. (New) The tire according to claim 78, wherein said crosslinkable elastomeric composition comprises 0.3 phr to 10 phr of at least one methylene donor compound.

83. (New) The tire according to claim 78, wherein said crosslinkable elastomeric composition comprises 0.8 phr to 15 phr of at least one methylene acceptor compound.

84. (New) The tire according to claim 78, wherein said sidewall insert extends radially from a position corresponding to the bead structure to a position corresponding to a tread lateral edge.

85. (New) The tire according to claim 78, wherein said tread underlayer is a layer of crosslinked elastomeric composition applied in a radially internal position with respect to said tread band.

86. (New) The tire according to claim 78, wherein said tread band is of cap and base construction and comprises a radially inner layer or tread base and a radially outer layer or tread cap.

87. (New) The tire according to claim 72, wherein said structural element has a dynamic elastic modulus, measured at 70°C, not lower than 5 MPa.

88. (New) The tire according to claim 87, wherein said structural element has a dynamic elastic modulus, measured at 70°C, of 8 MPa to 80 MPa.

89. (New) The tire according to claim 72, wherein said structural element has a tensile modulus at 100% elongation (100% Modulus) not lower than 3 MPa.

90. (New) The tire according to claim 89, wherein said structural element has a tensile modulus at 100% elongation (100% Modulus) of 4 MPa to 20 MPa.

91. (New) The tire according to claim 72, wherein said structural element has an IRHD hardness, measured at 23°C, not lower than 65.

92. (New) The tire according to claim 91, wherein said structural element has an IRHD hardness, measured at 23°C, of 70 to 95.

93. (New) The tire according to claim 72,
wherein the diene elastomeric polymer has a glass transition temperature below 20°C.

94. (New) The tire according to claim 93, wherein the diene elastomeric polymer is selected from: natural or synthetic cis-1,4-polyisoprene, 3,4-polyisoprene, polybutadiene, optionally halogenated isoprene/isobutene copolymers, 1,3-butadiene/acrylonitrile copolymers, styrene/1,3-butadiene copolymers, styrene/isoprene/1,3-butadiene copolymers, styrene/1,3-butadiene/acrylonitrile copolymers, or mixtures thereof.

95. (New) The tire according to claim 72, wherein the crosslinkable elastomeric composition comprises at least 10% by weight with respect to the total weight of the at least one diene elastomeric polymer of natural or synthetic cis-1, 4-polyisoprene.

96. (New) The tire according to claim 95, wherein the crosslinkable elastomeric composition comprises 20% by weight to 100% by weight with respect to

the total weight of the at least one diene elastomeric polymer of natural or synthetic cis-1,4-polyisoprene.

97. (New) The tire according to claim 72, wherein the crosslinkable elastomeric composition further comprises at least one elastomeric polymer of one or more monoolefins with an olefinic comonomer or derivatives thereof.

98. (New) The tire according to claim 97, wherein the elastomeric polymer is selected from: ethylene/propylene copolymers (EPR) or ethylene/propylene/diene copolymers (EPDM); polyisobutene; butyl rubbers; halobutyl rubbers; or mixtures thereof.

99. (New) The tire according to claim 93, wherein the diene elastomeric polymer comprises at least one functional group selected from carboxylic groups, carboxylate groups, anhydride groups, ester groups, or epoxy groups.

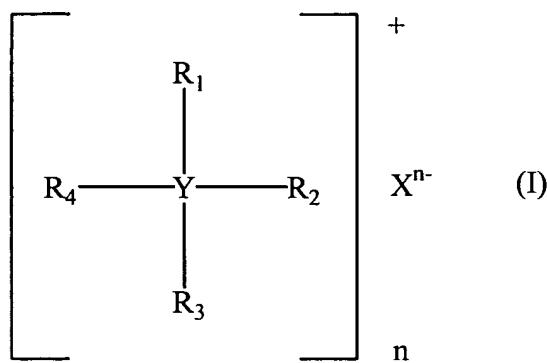
100. (New) The tire according to claim 97, wherein the at least one elastomeric polymer comprises at least one functional group selected from carboxylic groups, carboxylate groups, anhydride groups, ester groups, or epoxy groups.

101. (New) The tire according to claim 72, wherein said layered material is selected from: phyllosilicates, smectites, montmorillonite, bentonite, nontronite, beidellite, volkonskoite, laponite, hectorite, saponite, saucomite, magadite, kenyasite, stevensite, vermiculite, halloisite, sericite, aluminate oxides, hydrotalcite, or mixtures thereof.

102. (New) The tire according to claim 101, wherein said layered material is montmorillonite.

103. (New) The tire according to claim 72, wherein said layered material is treated with a compatibilizing agent.

104. (New) The tire according to claim 103, wherein said compatibilizing agent is selected from the quaternary ammonium or phosphonium salts having general formula (I):



wherein:

Y represents N or P;

R₁, R₂, R₃ and R₄, which may be identical or different, represent a linear or branched C₁-C₂₀ alkyl or hydroxyalkyl group; a linear or branched C₁-C₂₀ alkenyl or hydroxyalkenyl group; a group -R₅-SH or -R₅-NH wherein R₅ represents a linear or branched C₁-C₂₀ alkylene group; a C₆-C₁₈ aryl group; a C₇-C₂₀ arylalkyl or alkylaryl group; a C₅-C₁₈ cycloalkyl group, said cycloalkyl group possibly containing a hetero atom such as oxygen, nitrogen or sulphur;

Xⁿ⁻ represents an anion, a chlorine ion, a sulphate ion or a phosphate ion; and

n represents 1, 2 or 3.

105. (New) The tire according to claim 72, wherein the methylene donor compound is selected from: hexamethylenetetramine (HMT),

hexamethoxymethylmelamine (HMMM), formaldehyde, paraformaldehyde, trioxane, 2-methyl-2-nitro-1-propanal, substituted melamine resins, N-substituted oxymethylmelamine resins, glycoluril compounds, tetramethoxymethyl glycoluril, urea-formaldehyde resins, butylated urea-formaldehyde resins, or mixtures thereof.

106. (New) The tire according to claim 105, wherein the methylene donor compound is hexamethylenetetramine (HMT) or hexamethoxymethylmelamine (HMMM).

107. (New) The tire according to claim 72, wherein the methylene acceptor compound is selected from: resorcinol, catechol, hydroquinone, pyrogallol, phloroglucinol, 1-naphthol, 2 -naphthol, phenolic resins obtained from the condensation of an optionally substituted phenol with an aldehyde, formaldehyde, acetaldehyde, or furfural, or mixtures thereof.

108. (New) The tire according to claim 107, wherein the methylene acceptor compound is resorcinol.

109. (New) The tire according to claim 72, wherein said methylene donor compound and said methylene acceptor compound are added to the crosslinkable elastomeric composition in a precondensed form.

110. (New) The tire according to claim 72, wherein said crosslinkable elastomeric composition comprises 0 phr to 120 phr of at least one carbon black reinforcing filler.

111. (New) The tire according to claim 110, wherein said crosslinkable elastomeric composition comprises 20 phr to 90 phr of at least one carbon black reinforcing filler.

112. (New) The tire according to claim 72, wherein said crosslinkable elastomeric composition comprises at least one silane coupling agent.

113. (New) The tire according to claim 112, wherein said silane coupling agent is selected from a silane agent having at least one hydrolyzable silane group which may be identified by the following general formula (II)



wherein the groups R, which may be identical or different, are selected from: alkyl, alkoxy or aryloxy groups or from halogen atoms, on condition that at least one of the groups R is an alkoxy or aryloxy group; n is an integer of 1 to 6 inclusive; X is a group selected from: nitroso, mercapto, amino, epoxide, vinyl, imide, chloro, $-(S)_mC_nH_{2n}-Si-(R)_3$ or $-S-COR$ in which m and n are integers of 1 to 6 inclusive and the groups R are defined as above.

114. (New) The tire according to claim 112, wherein said silane coupling agent is present in the crosslinkable elastomeric composition in an amount of 0 phr to 10 phr.

115. (New) The tire according to claim 114, wherein said silane coupling agent is present in the crosslinkable elastomeric composition in an amount of 0.5 phr to 5 phr.

116. (New) The tire according to claim 72, wherein said crosslinkable elastomeric composition comprises discontinuous fibres.

117. (New) The tire according to claim 116, wherein said discontinuous fibres are aramid fibres.

118. (New) The tire according to claim 117, wherein said aramid fibres are short fibrillated poly (paraphenylene-terephthalamide) fibres.

119. (New) The tire according to claim 117, wherein said aramid fibres are predispersed in a polymer matrix selected from: natural rubber, butadiene/styrene copolymers, or ethylene/vinyl acetate copolymers.

120. (New) The tire according to claim 119, wherein said polymer matrix is natural rubber.

121. (New) The tire according to claim 116, wherein said discontinuous fibres are selected from: fibres based on other polyamides, on polyesters, on polyolefins, on polyvinyl alcohol, glass fibres, natural fibres, cellulose, lignine, or mixtures thereof.

122. (New) The tire according to claims 116, wherein said discontinuous fibres are present in the crosslinkable elastomeric composition in an amount of 0 phr to 10 phr.

123. (New) The tire according to claim 122, wherein said discontinuous fibres are present in an amount of 0.5 phr to 6 phr.

124. (New) The tire according to claim 72, wherein at least one additional reinforcing filler is present in said crosslinkable elastomeric composition in an amount of 0 phr to 120 phr.

125. (New) The tire according to claim 124, wherein said additional reinforcing filler is silica.

126. (New) The tire according to claim 125, wherein at least one further silane coupling agent is present.

127. (New) A crosslinkable elastomeric composition comprising:

(a) at least one diene elastomeric polymer;

(b) 1 phr to 50 phr of at least one layered material having an individual layer thickness of 0.01 nm to 30 nm.

(c) 0.1 phr to 15 phr of at least one methylene donor compound; and

(d) 0.4 phr to 20 phr of at least one methylene acceptor compound.

128. (New) The crosslinkable elastomeric composition according to claim 127, comprising 2 phr to 40 phr of at least one layered material.

129. (New) The crosslinkable elastomeric composition according to claim 127, comprising 5 phr to 30 phr of at least one layered material.

130. (New) The crosslinkable elastomeric composition according to claim 127, wherein said at least one layered material has an individual layer thickness of 0.05 nm to 15 nm.

131. (New) The crosslinkable elastomeric composition according to claim 127, wherein said crosslinkable elastomeric composition comprises 0.3 phr to 10 phr of at least one methylene donor compound.

132. (New) The crosslinkable elastomeric composition according to claim 127, wherein said crosslinkable elastomeric composition comprises 0.8 phr to 15 phr of at least one methylene acceptor compound.

133. (New) The crosslinkable elastomeric composition according to claim 127, wherein said diene elastomeric polymer has a glass transition temperature below 20°C, and is selected from: natural or synthetic cis-1,4-polyisoprene, 3,4-polyisoprene, polybutadiene, optionally halogenated isoprene/isobutene copolymers, 1,3-butadiene/acrylonitrile copolymers, styrene/1,3-butadiene copolymers,

styrene/isoprene/1,3-butadiene copolymers, styrene/1,3-butadiene/acrylonitrile copolymers, or mixtures thereof.

134. (New) The crosslinkable elastomeric composition according to claim 127, further comprising at least one elastomeric polymer of one or more monoolefins with an olefinic comonomer or derivatives thereof.

135. (New) The crosslinkable elastomeric composition according to claim 134, wherein the diene elastomeric polymer or the elastomeric polymer comprise at least one functional group selected from carboxylic groups, carboxylate groups, anhydride groups, ester groups, or epoxy groups

136. (New) The crosslinkable elastomeric composition according to claim 127, wherein the layered material is selected from: phyllosilicates, smectites, montmorillonite, bentonite, nontronite, beidellite, volkonskoite, laponite, hectorite, saponite, sauconite, magadite, kenyasite, stevensite, vermiculite, halloisite, sericite, aluminate oxides, hydrotalcite, or mixtures thereof, and/or wherein said layered material is treated with a compatibilizing agent.

137. (New) The crosslinkable elastomeric composition according to claim 127, wherein the methylene donor compound is selected from: hexamethylenetetramine (HMT), hexamethoxymethylmelamine (HMMM), formaldehyde, paraformaldehyde, trioxane, 2-methyl-2-nitro-1-propanal, substituted melamine resins, N-substituted oxymethylmelamine resins, glycoluril compounds, tetramethoxymethyl glycoluril, urea-formaldehyde resins, butylated urea-formaldehyde resins, or mixtures thereof.

138. (New) The crosslinkable elastomeric composition according to claim 127, wherein said methylene acceptor compound is selected from: resorcinol, catechol,

hydroquinone, pyrogallol, phloroglucinol, 1-naphthol, 2 -naphthol, phenolic resins obtained from the condensation of an optionally substituted phenol with an aldehyde, formaldehyde, acetaldehyde, or furfural, or mixtures thereof.

139. (New) The crosslinkable elastomeric composition according to claim 127, wherein said methylene donor compound and said methylene acceptor compound are added in a precondensed form.

140. (New) The crosslinkable elastomeric composition according to claim 127, wherein said crosslinkable elastomeric composition comprises at least one carbon black reinforcing filler.

141. (New) The crosslinkable elastomeric composition according to claim 127, wherein said crosslinkable elastomeric composition comprises at least one silane coupling agent.

142. (New) The crosslinkable elastomeric composition according to claim 127, wherein at least one additional reinforcing filler is present in an amount of 0 phr to 120 phr.

143. (New) The crosslinkable elastomeric composition according to claim 142, wherein the additional reinforcing filler is silica.

144. (New) The crosslinkable elastomeric composition according to claim 143, wherein at least one silane coupling agent is present.

145. (New) The crosslinkable elastomeric composition according to claim 127, further comprising discontinuous fibres.

146. (New) A crosslinked manufactured article obtained by crosslinking a crosslinkable elastomeric composition defined according to claim 127.